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LONG RANGE PLANNING FUTURES

A CONCEPT OF A FUTURE FORCE

2 NOVEMBER 1981

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The views, opinions and/or findings contained in this report are those of the author and should not be construed as an official Department of the Army position, policy, or decision, unless so designated by other official documentation.

DEPARTMENT OF THE ARMY
US ARMY WAR COLLEGE
STRATEGIC STUDIES INSTITUTE
CARLISLE BARRACKS, PENNSYLVANIA 17013

REPLY TO ATTENTION OF

AWCI

17 February 1982

Defense Technical Information Center
510 Duke Street
Cameron Station
Alexandria, VA 22314

Inclosed is your copy of the Strategic Studies Institute Futures/Long-Range Planning Group's report, "A Concept of a Future Force," by Charles W. Taylor. Futures/Long-Range Planning Group reports are written to stimulate thought, raise questions, and provoke alternate points of view.

Mr. Taylor, in "A Concept of a Future Force," presents a projection which goes beyond the 1990's into the very long-range future and theorizes what the Army might be like after the turn of the century. The concepts of the 21st century Army are based on inferences and ideas from current futurist literature concerning anticipated US and international societal changes and technological advances which suggest the direction Army planners might have to follow to design a future force. The views, predictions, and conclusions expressed in this report are solely those of the author and do not necessarily reflect an official position, policy, or decision of the Futures/Long-Range Planning Group, the Stracegic Studies Institute, the US Army War College, or any other agency.

Sincerely,

Thomas R. Stone

Incl
as

THOMAS R. STONE
Colonel FA
Chairman, Futures/Long-Range Planning Group

STRATEGIC STUDIES INSTITUTE
US ARMY WAR COLLEGE
Carlisle Barracks, Pennsylvania 17013

A CONCEPT OF A FUTURE FORCE

by

Charles W. Taylor

2 November 1981

DISCLAIMER

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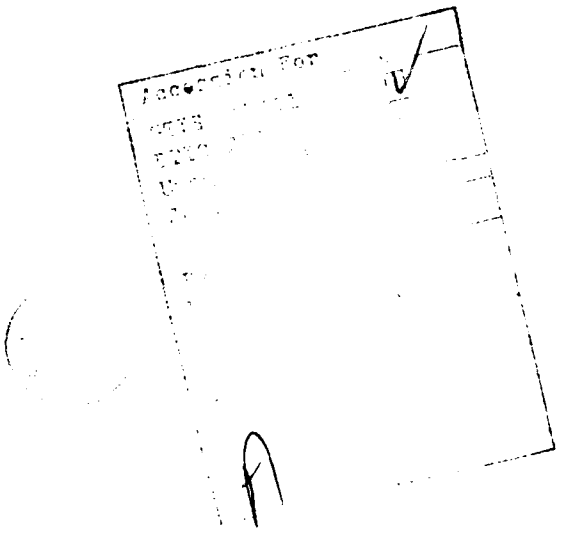
ABSTRACT

Using a likely force design of a 1990's modernized US Army as a point of departure, a concept for a future force for the early years of the 21st century is described by this futures report. Consideration, based on the author's view of trends and ideas found in futurist literature, is given to planning, manning, training, equipping, fighting and managing the future Army portrayed.

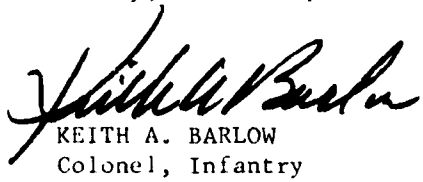
The author's conceptual future Army is few in numbers of personnel and is technologically superior when compared to traditional 20th century forces. It is composed of attrition, reactionary, and contingency fighting elements. Its principal battle characteristics will be deep, decisive, piranha-like strikes against enemy forces. The author envisions that his future force will apply a rapid succession of actions consisting of scan, swarm, strike, and scatter. During the transition years from a modernized 1990's force to the 21st century fighting force, the author foresees a Reserve Component which will play an important role assisting in countering threats to US national security.



FOREWORD

This futures report presents a concept of a 21st century fighting force. The projected design of this future force is an individual effort based on the author's interpretation of the possible consequences of 20th century trends found in futurist literature and is not necessarily meant to be an alternative to any other Army 2000 operational concept.

This report was prepared as a contribution to the field of national security research and study. As such, it does not reflect the official view of the US Army War College, the Department of the Army, or the Department of Defense.



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BIOGRAPHICAL SKETCH OF THE AUTHOR

Charles W. Taylor is a Strategic Research Analyst and Futurist with the Strategic Studies Institute (SSI) and a member of the Futures/Long-Range Planning Group. His experience with futurology extends over 18 years. Mr. Taylor has made major contributions in the form of futures projections as part of DCSOPS requested studies for the US Army. Additionally, Mr. Taylor designed an interdisciplinary Delphi process for identifying world trends for the SSI Forecast 90 document. He is the originator of the Panel Consensus Technique, an internationally recognized contribution to participative decisionmaking, problem solving and forecasting. He has published articles in professional journals, has presented papers at symposia, and has conducted workshops on forecasting and creative decisionmaking/problem solving for graduate students, USAWC students, and Federal, state, and local government groups. He is a member of the International Studies Association, American Academy of Political and Social Sciences, American Association for the Advancement of Science, the World Future Society, the Minnesota Futurists, New York Academy of Science, and the Creative Education Foundation.

Introduction. How future US forces will be structured, how they will be equipped, manned, trained, managed, and how they will fight will be influenced profoundly by gradual and incremental (though occasionally, drastic) economic, social, and technological changes. Where, who, and when future US forces will fight will remain uncertain[1] and probably will be determined by new international economic and political-military dimensions which threaten US interests and world peace.[2] Such dimensions likely will be sufficiently threatened that they will demand national military action to support and to protect US beliefs and to filfill national needs,[3] the deprivation of which would weaken or destroy this nation, its people, or our national institutions. Deterring such conflict environments will be contingent on the United States maintaining a strong, sound, capable and prepared Army--not just for the long-range period (10-20 years from today) but, especially, for the very long-range period (20-30 years). Transition from a fully modernized US Army, e.g., Division 86, to a new, 21st century Army will have to be planned during the early 1990's and implementation will have to begin before the end of the century. Such planning and implementation will also have to consider the total force as well, for new requirements will also be assigned to the Reserve Component and civilian force.

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1. Likewise, the questions, Why the Army? and, if the United States needs one, What type of Army? are equally uncertainties which must be pondered.

2. The assumption here is that fundamental US interests which exist in the 20th century will be essentially the same in the 21st century. As for world peace, a definition acceptable to all nation states has yet to be articulated.

3. Without question, US beliefs and national needs after the turn of the century are subjects of possible change. The assumption here is that they will bear close resemblance to those of the 1980's and 1990's.

The following sections consider some of the possible concepts for the future US force--a new, 21st century force--its structure, management, equipment, manpower, training, and its concept of fighting. Although no detailed description of the characteristics of a future battlefield is presented because of its uncertain dimensions,[4] an underlying assumption is that the concept of the battlefield too will change.

Planning the force. By 1990, military planners and strategists will have overhauled and modernized the US force structure. The rapidly changing international environment and new technological advances, along with new specialty skills and a dwindling supply of military age manpower (partial recovery is not expected until the mid-1990's), will demand that Army planners reevaluate the traditional Army structure. (It is likely that unit readiness in the early 1990's may fall to unprecedented lows because of an imbalance of equipment to available manpower.) Additionally, planners will have to reconsider traditional Army missions, roles, and concepts of land combat. Based on the 1980's projections of Army long-range planners, midrange planners in 1990 will begin planning the transition from the modernized Army to a new Army for the first decade of the 21st century. Before a transition to this new Army can be considered, however, an understanding and brief description of a 1990's modernized force is essential.

The predominant features of the 1990's modernized force[5] include:

4. The term "battlefield" will likely be anachronistic in the 21st century since population/urban expansion will shrink available geographic areas and maneuvering space for large army operations.

5. Adapted from John S. Ellison, Conceptualizing a Force for the Year 2000, unpublished paper; Washington: Strategy, Plans, and Policy Directorate, DA ODCSOPS, pp. 2-6.

o a heavy force with orientation toward conventional and nuclear land combat in Central Europe, the Middle East, the land mass of East Asia, or North Africa

o firepower intensive and armor heavy, with low personnel densities (in comparison to mid-20th century personnel to firepower ratios in the battle arena)

o moderate to low strategic mobility and moderate to high tactical mobility and

o combat capability largely suitable for open terrain.

Additional capabilities and features of the 1990's modernized force also include:

o a medium and light force capability to accommodate conventional combat in a variety of open or close terrain such as in Africa, South Asia, or Latin America

o firepower intensive, light to no armor, with low to balanced personnel density in the battle arena and

o high to moderate strategic mobility and high tactical mobility (especially the Rapid Deployment Joint Task Force [RDJTF]).

Moreover, the 1990's modernized Army will retain its Special Forces capabilities but these capabilities as well as those of its light forces (including the Rangers) will be increasingly absorbed by the RDJTF. It is from this 1990's modernized force that the future force for the 21st century must be built.

Planning for the new 21st century force will include addressing a number of problem areas which will significantly affect the future force: (The listing is not intended to be inclusive.)

o Availability of manpower--type of personnel and skills needed; recruiting, retention, and compensation; type of training and training needs; education and other benefits; competition for personnel (industrial and educational)

o Technological advances--weapons and equipment; support and mobility; communications

o Geographic and demographic impact--decreases in available land space for training forces (at home and abroad), for overseas basing, and for conflict/combat operations

o Threat--technological advances in Soviet fighting capabilities on land and sea and in air and space (many of which offset reduced Soviet manning capabilities resulting from demographic shifts and zero population growth in European USSR); and other threats such as resource denial, international terrorism

o Characteristics of 21st century warfare--weapons and counterweapons used; extent of EW and countermeasures used; survivability and sustainability of systems and personnel

o US foreign policy--impact of policy change on contemporary military strategy requiring new strategies to support the national policies' objectives.

By 1990 planners and forecasters will have codified sources of data for these problem areas as well as designed interactive computerized processes.[6] These processes along with the use of teleconferencing by the Army Staff will permit a consistent perspective toward the early identification of change, the development of alternative solutions, the updating of long-range plans, and the weaving of holistic patterns essential for the transition of the 1990's modernized force (the traditional Army) to the new 21st century Army.

Manning the force. Trends in demographics give forecasters and planners a data base from which to begin plans for manning the 21st century force. The numbers of individuals potentially available for military service can be extrapolated to a desired date. (Whether the individuals volunteer or are drafted or shanghaied, they are, theoretically, available.) Availability, however, describes nothing of quality (trainability), or the inclination of individuals to be made soldiers. The general trend into the 1990's will be a force of decreasing size in numbers of personnel and of older-age soldiers as the Army recruits and retains more personnel in the 25-32 year age group and older, and

6. See Selwyn Enzer, Exploring Changes in the Business Climate--1980-2000, Center for Futures Research, Graduate School of Business, University of Southern California, October 1980, pp. 2-3; also, Enzer, INTERAX--An Interactive Model for Studying Future Business Environments, Center for Futures Research, December 1979.

as the Army extends the retirement age. Beyond the mid-1990's to early in the first decade of the new century, however, an adequate contingent of individuals in the 17-21 and 25-32 year old age groups likely will be available to accommodate a basic Army requirement for sustained 20th century combat operations. The Army, by the mid-1990's, will have become accustomed to operating with smaller force.

Additionally, the projected rate of population growth along with urban expansion in almost every region of the world over the next two decades suggests that traditional large armies of 20th century vintage and their styles of operation will likely be inappropriate in such congested environments. (The failure of British Army operations in countering the I.R.A. in Northern Ireland in the 1980's suggests such an anomaly.) Moreover, the prospects of technological change during the next 20 years, while very likely to force rapid obsolescence of weapons, counterweapons, and equipment, increasingly will produce more effective military systems (compared to past systems) which will require relatively fewer operational personnel. As new technology becomes available during the 1980's and 1990's--primarily in the fields of automation, robotics, and computerization--the number of workers required for industrial production will be reduced as will the number of military personnel required for advanced military operations (robotic command posts and automated resupply systems, for examples).

It can be expected that inadequate geographic space for large armies to maneuver, dwindling acquisitions of 17-21 year olds during the 1980's and 1990's, and technological displacement of military personnel will prescribe the development of a small and efficient future active Army for the 21st century. If this Army is to be efficient, planners must give unprecedented attention to the

individual--selection (emphasizing training potential), skills, knowledge, leadership traits, and personal values--since the soldier will be required to become part of a tight-knit, cohesive team. By the turn of the century, industrial and societal integration of women will allow the Army greater flexibility in the placement of qualified personnel.

Although the chances of general war and/or the requirement for total mobilization during the 1980's and 1990's probably will remain low (on a scale of most-likely-to-occur events), the ability of the active Army to expand to a wartime status in a rapid and orderly manner and to maintain an adequate peacetime replacement system will remain critical continuing requirements. Attracting and retaining highly qualified personnel will continue to be the critical key to maintaining a professional future Army. Increases in educational level as well as in technologically-oriented skills within the national population over the next two decades, will improve the availability of qualified personnel for Army needs. The placement, in the 1980's, of military careers on a financial par with industrial/business careers (including cost of living and inflation variables) and a continuing-career military educational system (academic and technical) will likely increase recruitment, selection, and retention of specialized personnel needed by the Army. To maintain residual capabilities as well as to retain skills and the leadership talents of the officer and NCO corps, attending continuing-career education would result in reserve forces assignment obligations for personnel completing their terms of service. Such assignments would also be required for career personnel who retire--so long as they were physically fit. Additionally, extended time on active duty beyond retirement could be arranged at adjusted compensation for selected career personnel whose talents

and critical skills continue to be required. Every effort will be made to train and retain an effective force of appropriate size for the 21st century Army.

Training the force. The future force will be more efficient and professional than the traditional force of the 20th century. The force will also be smaller with greater flexibility in the force structure (fewer divisions and more independent brigades, for example). Residual force strength will be retained in a fully equipped reserve force trained for both conventional and nuclear combat of 20th century characteristics (21st century capabilities will be phased into the reserve force as appropriate). The effectiveness of the active 21st century force will be improved, principally, by late 20th century technological achievements in mobility, weapons, and communication as well as by new concepts for land, sea, air, and space combat. The force will be proficient in combat operations so long as innovative training is planned for well in advance of the fielding of the anticipated technology. Increased benefit packages will make the 21st century Army a force of professional soldiers--professionally educated, trained, and compensated--capable of accomplishing both peacetime and wartime missions.

Training and education of the 21st century Army will blend potential skills, knowledge, and leadership traits. For example, a comprehensive peacetime military and civilian continuing-career educational program (CCEP) fully funded by the Department of Defense. Such a program would serve as an incentive for enlistment and as a reward for service. A CCEP would offer military personnel (active and reserve) education and training for 21st century defense (and follow-on civilian) careers in exchange for obligatory extended active and reserve service. A similar obligatory CCEP, for example, could be developed for

DoD civilians (especially in such critical fields as engineering, medicine, management, electronics, and maintenance)[7] in exchange for retention in position/location in the event of hostilities. Such a program would also continue to include civilian intern programs for specific technical skills appropriate for support of the 21st century force. Both military and civilian programs would be available during peacetime in the United States and overseas and would guarantee progressive pay or position advancement, commensurate to performance, linked to individually planned schedules.

Operational training by the turn of the century would have to maintain a high state of individual and unit readiness and would take priority over individual career educational programs. To attain the required readiness by 2000 the most advanced educational/training techniques would be used. Considering the continued rise of technology (especially high technology) throughout the US society during the 1980's and 1990's, the Army increasingly will be manned by personnel with high aptitudes in technology who will be capable of being trained to program computerized robotic equipment as well as understand equipment design and operation. Additionally, testing methods would match human aptitudes and performance capabilities with systems, increasing the likelihood of effective operational performance.

Increasingly, during the 1990's reliance will be placed on computerized training devices and simulators. Training programs begun in the late 1980's involving the use of computerized learning and recreational devices (e.g., future generation logic video games) will be augmented in the 1990's with more

7. Many 20th century civilian occupational specialties will become obsolete and others displaced by robotization throughout the US industrial sector during the 1990's. Although many of these individuals will provide a manpower source for the traditional Army, the 21st century force, like industry, will have little need for their skills.

sophisticated systems geared to new technologically advanced weapons systems Likewise, continuation of computer-assisted/-managed instructional and simulation programs will facilitate training the 21st century Army. Simulators (such as mock-up equipment) will continue to serve maintenance personnel through the modernized 1990's Army and the 21st century Army. While simulators have special use for maintenance training, new innovative simulators will have greater impact on combat training for the future Army. Three-dimensional, computerized minicombat arenas using 21st century weaponry and multimedia concepts will serve as training simulators for combat unit personnel. (Overpopulated and congested urban environments are especially adaptable to simulators.) Other computerized, robotic training devices will be prevalent throughout the 21st century Army. Completely computerized wargaming will become a significant educational adjunct to the service schools. It will include full display and gaming ranging from urban tactical engagements in most major cities in the world, to tactical engagements in space, to broad strategic engagements worldwide with zoom capabilities to any smaller geographic area.

Battle and engagement simulations, however, will hold a central place in training and in determining the effectiveness of the modernized 1990's Army as well as that of the 21st century force. The 21st century Army increasingly will be assisted by advanced technology in mobility, weapon systems, and communication enabling it to deal better with hostile environments where powerful adversary weapons will be employed on land and from the sea, the air, and space. Service schools will be the mainstay of education and training and will use the instructional technology and multimedia techniques of the late 1990's. Miniaturized videodiscs with hand-held playback cassettes and individual (back-pack or pocket-size) computer/communicators, for example, will be standard issue at service schools.

Education and training throughout the schools will be further assisted by integrated, interservice omnipresent-teleconferencing networks (designed, in principle, to operate in the field).

In general, Army training for the 21st century will provide an efficient and professional force through effective instruction and innovative training-technology adapted to a wide variety of new military specialties.

Equipping the force. Equipping the 21st century force will require long-range planning decisions which, though they may be modified as the years pass, define the general objectives of the future force. Long-range planners, strategists, and forecasters of the late 1980's and early 1990's will have to anticipate the most probable changes in the world societal and international environment, the limits of the threat of the most prominent adversary, the most likely US technological advances, and the mood of the domestic political and public sectors. Such anticipation will result in politically and publicly acceptable recommendations for the prudent disposition of current midrange materiel (largely, to the Reserve Component) and the timely procurement and deployment of future weapons and support materiel. Two related factors will play a significant role in these recommendations: the increasing worldwide demand for energy resources as well as other strategic materials which will require planners to examine critically Army needs, necessary stockpiles, and the probability of the development of substitutes; and the broad aspects of scientific and technological progress which will accommodate the materiel and human needs of the future force in 21st century combat.

As 20th century concepts for waging land warfare change and the possibility of the conduct and control of combat move into new dimensions, i.e., outer space, an orderly transition from a 1990's traditionally equipped force

into an ultra-modern force for the anticipated 21st century environment will become a critical undertaking that must be planned with utmost care. Such a transition must take place without the United States losing the ability to control crises or win battles (if called upon to fight). Adversary technological interests and progress where military application is likely must be continuously observed and evaluated. The United States can ill afford a confrontation in the 21st century with a technologically superior nation. Such a possibility increases the need for procurement planners to anticipate US technological achievements and to provide the future force with the most advanced equipment, materiel, and weapons.

In order to equip a 21st century force that will be efficient and professional, the following categories of needs (with general descriptions) will have to be met and appropriate equipment designed, manufactured, and procured:

o mobility for land, sea, air, and space transport of individuals and small and large units: such systems will be lightweight, with "stealth" configuration and capable of vertical and short takeoff and landing and variable subsonic to supersonic speeds under all weather conditions. Such systems may have independently self-contained or field-generated energy/propulsion sources and be designed with built-in weapons and counterweapons systems. All mobility systems will have computerized audio-video C^3I and, where appropriate, robotic features.

o communication for individuals and small and large units: such systems will be lightweight, miniaturized, and compact. Most will have a built-in energy source or will be solar energized or reenergized by small, high-energy-output (possibly nuclear) mobile field units. Systems may use broad or selective range electromagnetic and/or laser for near real-time reception. Individuals and units will have miniaturized audio-video interactive omnipresent teleconferencing capabilities. Communication systems will have built-in shielding and nuclear blast protection. Units will be provided all-environments detection systems.

o support for small and large units: systems will provide all-weather and-environments resupply of lightweight materiel to land, sea, air, and space units. Shelters for units will be low density, radiation and shock proof, of inflatable design with optional modular configuration for individual to large unit (command center or hospital). Food packets for individual to large unit may be compact, irradiated or freeze-dried or concentrated high-nutritive liquid or tablets. Ultrasonic logistic drones will resupply materiel (including Class V) via lower or upper air routes as well as outerspace.

o weapons for land, sea, air, and space use: such systems will be lightweight and may be capable of effects ranging from high lethality to selective incapacitation against personnel targets and high-kill probability against fixed and mobile targets. Most of these weapons will use laser, particle beam, radiation, nuclear, chemical, acoustic, and psychotronic systems. Individuals will be protected by lightweight, CBR-proof armor.

Planning the logistic systems for the 21st century force will require new funding or the diversion of funds designated for systems of the 1990's modernized force which will be made obsolescent by technology. During the 1990's, procurement for the future force will begin to take precedence over acquisition for the modernized force, thus hastening technological obsolescence of enemy capabilities. At the turn of the century, the 21st century force must have a better-than-modest capability to succeed in battle.

Fighting the force. The 21st century Army will be a more rapidly deployable, technologically superior fighting force when compared to the force of the 1990's. It will be comprised of heavy (attrition), medium (reactionary), and light (contingency) elements. They are defined as such principally in terms of weapons' lethality and their use in combat. The future force will be professionally well-trained and -equipped and capable of countering threats over the entire conflict spectrum and defeating, as appropriate, an adversary almost anywhere in earth and space. The manifest battle characteristics for strategic and tactical forces will be deep, decisive, lightning- or piranha-like strikes against enemy forces.[8]

Combat operations of the 21st century Army will be designed, basically, to strike against opposing forces and disengage while being alert at all times to counterstrikes. The future force will apply a rapid succession of actions consisting of scan, swarm, strike, and scatter. The most advanced intelligence target acquisition, surveillance, and EW technology will be indispensable to the success of this concept. If the future force maintains a continuous addition of

8. Adapted from Robert B. Rigg, "Kinesthetic Warfare," Military Review, Vol. 45, September 1965, pp. 13-19. Also David S. Jackson, Hypermodernization for the Twenty-First Century: A Vital Step Beyond Modernization for the 1980's, US Army War College, Research Project, 15 May 1980, pp. 13-15.

innovative, technologically inspired operational concepts it could force doctrinal obsolescence on traditional Soviet military operations or force Soviet conversion to a more modern force. Although primarily designed to counter worldwide Soviet threats, the future force structure will accommodate a variety of lesser threats as well.

The configuration of the future force will have the following general characteristics:

a. Attrition forces:

o high lethality firepower intensive with low personnel density in the battle arena (in comparison to the 1990's modernized force personnel to firepower ratios)

o moderate to moderately low sustainability and high survivability with moderate protection

o moderately high strategic mobility and moderate tactical mobility with moderate deployability

o land and airborne combat vehicles prevailing; appropriate for open terrain

b. Reactionary forces:

o moderate lethality firepower to moderate incapacitating firepower with low personnel density in the battle arena

o high to moderately high sustainability and survivability with moderate protection

o moderately high strategic mobility, high to moderate tactical mobility, and moderate to high deployability

o land and airborne combat vehicles predominant; appropriate for open or close terrain and MOUT (military operations in urban terrain); and moderately low to low space operations

c. Contingency forces:

o low to moderate lethality and high incapacitating firepower with balanced personnel density in the combat arena

o high to moderately high sustainability and moderate to low survivability with low protection

o high strategic mobility, moderate to low tactical mobility, and high deployability

o light, robotic small-unit land and airborne combat vehicles predominant; appropriate for close terrain (urban areas, mountains, jungles); moderate to high space operations; high special forces operations cabapilities

The 21st century fighting force will require a mix of the forces described above. Considering the possibility that US forces will be more likely to become involved in small wars in Africa, South Asia, the Middle East, or Latin America, than in larger wars in Europe, East Asia, or North Africa, an estimate of the type of forces required that could meet both contingencies could be:

attrition forces	30%
reactionary forces	40%
contingency forces	30%

Residual 20th century fighting capability, using the weapons systems and combat operations of the modernized 1990's Army (as mentioned earlier) will be assigned to the Reserve Component. In the event that an unexpected threat of a large war originates in Europe or the Middle East before the turn of the century, and before transition to the new force is completed, the Reserve Component will be called upon, initially, to assist in countering that threat and, in all likelihood, will be supported effectively by the capabilities of the 21st century force.

The 21st century Army may be required to engage in conflict in a variety of world regions and environments. Responding to this requirement will frequently necessitate close interservice cooperation and joint operations with technologically compatible US Air Force, Navy, and Marines as well as combined and expeditionary operations with allied forces. Advanced command and management systems and practices will be needed throughout the future Army to fulfill its missions effectively.

Managing the force. Management of the future Army will be as complex in the 21st century as it was in the 20th century. Army management systems will, however, be more cost-effective and productive and will require fewer personnel to perform management tasks.

Decentralized Army management practices, instituted in the early 1980's, to distribute responsibilities to Army top management, increasingly will incorporate participative management schemes in order to take advantage of the maximum advisory decisionmaking talents available. Such decentralization, in the long term, will achieve lower overall costs while increasing the quality of military systems acquisitions and the reliability of new experimental technology and the general management of information systems. New management practices and systems will have to be evaluated for their long-term effectiveness as they are added to the acquisition process. Moreover, management decisions also will have to be evaluated carefully for their consequences which could impact upon the effectiveness of the future force.

During the next decade, weapons and communications systems based on low-risk technology will rapidly become obsolescent (even before manufacture and delivery can be made) primarily because of newer technological advancements or because of the foreign development of countersystems. To avoid the high costs of contract cancellation or the delivery of obsolescent and unusable systems, the Army will have to initiate innovative cooperative-management schemes.[9]

Personnel management for the 21st century Army will be similar to that of the 20th century traditional Army but will have greater flexibility. The Army will have to provide innovative and creative means to recruit and retain the

9. For instance: a high-risk loss/gain option clause where the industrial manufacturer phases-out the production of ordered materiel and phases-in the new order. Advanced industrial robotics will significantly facilitate the transition.

quantity and quality of personnel necessary to maintain an effective fighting force. The educational and training career programs described earlier could serve the above objectives. Additionally, lateral placement from university or college recruitment to training with military placement would also serve the objectives. For another approach, the complete contractual program, from industrial recruitment and training to package (hardware, software, and personnel), then to military placement would serve manning needs for a specified period. Civilianization of selected military occupations, particularly in logistics and communications, with service contractual arrangements in the event of hostilities, would also serve emergency manning needs. Recruitment of personnel at an older age, extended retirement age, and recruitment of more women are other options. The quality of personnel, along with other criteria, would depend on entry educational background which would be substantially improved by in-service education.

It is possible that in-service education and training for the 21st century force could be managed by a single DoD educational system which would be responsible for the Defense University, Service Colleges, Branch Schools, and Technical Schools and which would coordinate the education and training for the total force.

Additionally, Army personnel management could provide career personnel with a life-management-prospectus which would provide individual goals and objectives from recruitment to retirement (and beyond) based on interests, aptitude, natural ability, and learning potential. In addition to the prospectus, other testing devices would match individuals to specific military occupations essential for the future Army. Individual combat performance could also be determined for a variety of combat scenarios to assist in selection and assignment by using advanced simulation techniques and medical testing (e.g., stress analyses).

Combat management of the 21st century Army will be significantly assisted by interactive computerized systems linked worldwide via satellite which will provide real-time display information on enemy and friendly forces on video screens. The system will project large-area coverage or zoom to small areas. Command and control will be secure, EMP shielded, audio-video worldwide display and communication systems. Logistic support will use "stealth" configured high-speed VSTOL for near-earth, in-theater strategic and tactical support and space shuttles for long-range support.

During the late 1980's and early 1990's, preoccupation with the management of crises of the moment or of the near future will detract from preparing for the crises of tomorrow. Developing the management skills needed for the future force will not be an easy task.

Twentieth century management techniques likely will be inappropriate for managing the future force and many will be replaced by new schemes for logistics, C^3I and combat management. Three dimensional, real-time video display from worldwide and space Army bases, depots, and stations will make the manager an integral part of the military units being served where the commander's wisdom can be shared and blended with the practical insight of leaders in the battle arena. Commanders will function as planners, organizers, coordinators, and decisionmakers; collecting, analyzing and providing information as well as allocating resources to achieve objectives. The extensive use of omnipresent-teleconferencing will assist the manager in orchestrating the decision environment and will likely result in greater motivation and efficient unit performance. Although suggestive of centralized decisionmaking, teleconferencing will improve the benefits which can be derived from participative management and concensus decisionmaking. The advanced planning for the management of the future force

in times of peace, crises or conflict is as essential for manning, training, equipping and fighting the 21st century force as it is for the preservation of US national security.

Summary. The decision to build an Army for the 21st century as described cannot be done without risk taking. There is risk in any action (even in inaction). The concept for such a force is based on the assumption that technological achievements over the next two decades in weaponry, mobility, and communications will make 20th century combat systems and operations rapidly obsolescent despite the modernization of the Army that will be accomplished during the last two decades of the 20th century. It is further assumed that these technological achievements will make the 21st century Army superior to any previous US fighting force. Also, inherent in the concept is the assumption that the Army will become accustomed to the decreasing availability of manpower (17-24 year old cohort) and that its former high manpower needs will be partially replaced by advanced technology. Some uncertainties related to a decision to build a future force are:

o the anticipated technology may not emerge in a timely manner to allow planners to meet a scheduled development of a 21st century force;

o unanticipated domestic events (such as an economic depression) or world events (such as a major war involving the United States) may delay or preclude the decision to build a 21st century force or the attainment of such a force once the decision is made;

o the Soviet Union may surpass the United States in technological achievements and will develop a military force technologically superior to the 1990's modernized US force before the US future force is implemented; and

o the horn of plenty, the superabundance of resources (food and materials), may be more myth than reality and the United States and other nations

of the world may be caught up in a survival struggle beset with economic and armed conflicts for resources which may preclude the development of a future force.

Despite the existence of uncertainties, the benefits to national security which could be derived from the 21st century force described present a challenge to Army planners to ponder the Army's task in the defense of the United States and how it will fulfill that task after the turn of the century.

o Army planners must weigh projected changes in domestic demographics against the manpower requirements of the 1990's modernized force. They must also compare these changes to projected demographic data of US allies and to those of US adversaries.

o Planners must carefully consider Soviet technological advances and interests and their probable application toward strengthening Soviet military capabilities.

o Planners must weigh the utility of high technology training and its applicability to and suitability for the 1990's modernized force against that of the 21st century force described.

o Planners must assess the effectiveness of traditional warfighting equipment and concepts of warfare in a dynamic world environment that, in some regions, is increasingly becoming overpopulated and against increasingly technologically oriented adversaries.

o Planners must measure the value of traditional military operations against the value of 21st century technologically dominated military operations

o Finally, planners must evaluate traditional military management to determine its effectiveness for the management of forces and conflict in the 21st century.

The force, described in this paper, is but one alternative for a 21st century Army. It is recommended that Army planners carefully consider this future force as they determine the shape of the force which will be charged with meeting the challenges of the early 21st century.

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This report provides a conceptual view of a future Army. It is a narrative of a concept of a future Army which presents projections on the planning, manning, training, equipping, fighting, and managing of a future force beyond 1995 and into the early years of the 21st century. The concepts are based on trends and ideas found in futurist literature and are solely the views of the author.

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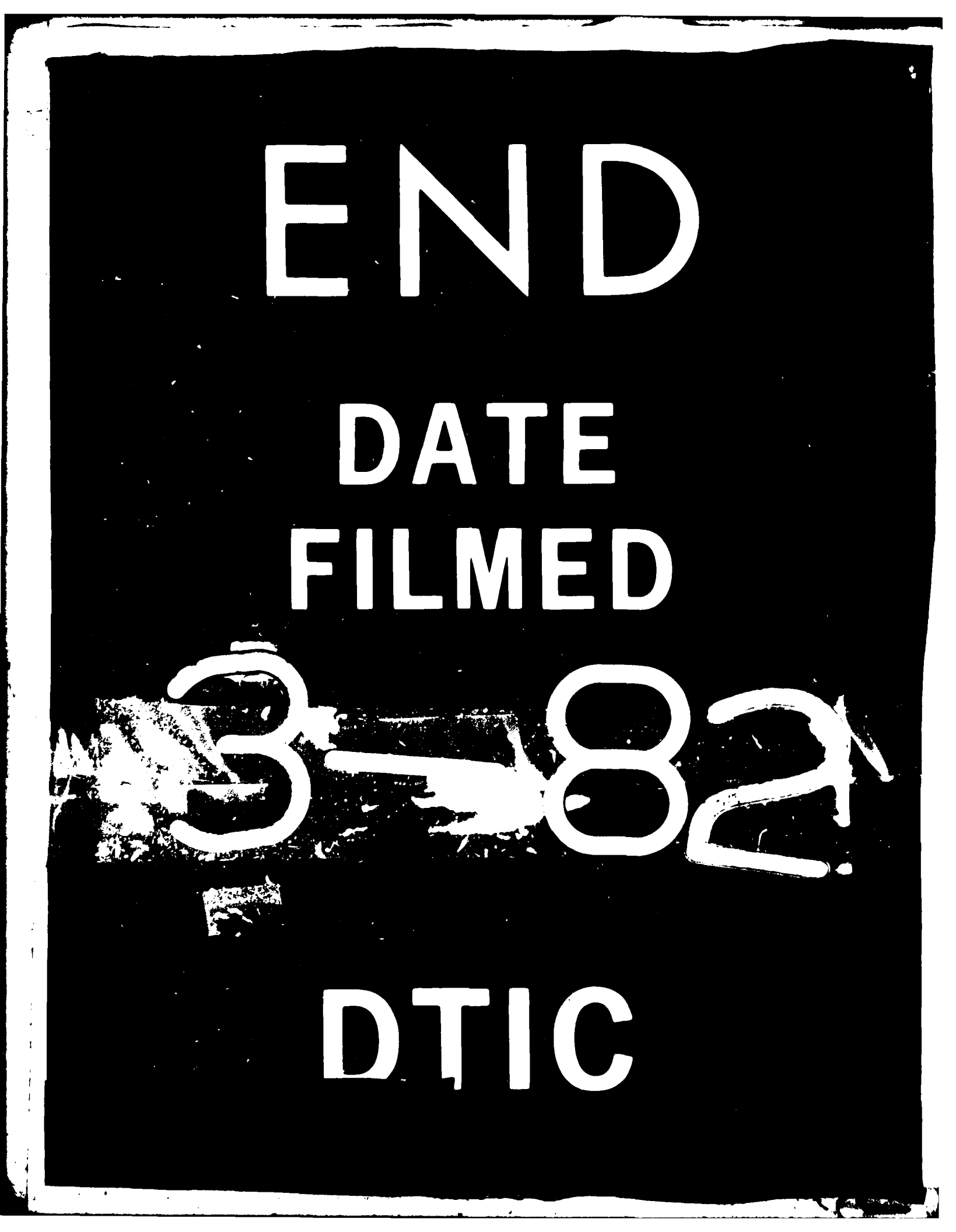
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